

WHAT IS CLAIMED IS

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1. A communication path control method of a repeating apparatus of a layer 2 LAN, comprising the steps of:

- 10 a) when a received frame is a destination-unknown frame, generating and broadcasting a frame ← *complex frame*  
for path detection having a shortest data length using a destination address of said received frame and an address of the own apparatus; and
- 15 b) when receiving a responding frame returned from a repeating apparatus having found the destination for said frame for path detection,
- 12 transmitting said received frame for a transmission source of said responding frame?

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↑ frame for path detection

2. A communication path control method of a repeating apparatus of a layer 2 LAN, comprising the steps of:

- 25 a) when a received frame is a broadcast frame or a destination-unknown frame, storing said received frame or a derivative frame thereof; and
- 30 b) when receiving the frame the same as said received frame or derivative frame within a predetermined time from the storage of said received frame or derivative frame, discarding the received same frame.

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3. A communication path control method of a repeating apparatus of a layer 2 LAN, comprising the steps of:

- 5 a) when a received frame is a broadcast frame or a destination-unknown frame, storing said received frame or a derivative frame thereof; and
- b) when said received frame is a destination-unknown frame, generating and broadcasting a frame for path detection having a shortest data length using a destination address of said received frame and an address of the own apparatus;
- 10 c) when receiving the frame the same as said received frame or derivative frame within a predetermined time from the storage of said received frame or derivative frame, discarding the received same frame;
- 15 d) when receiving a responding frame returned from a repeating apparatus having found the destination for said frame for path detection, transmitting said received frame for a transmission source of said responding frame.
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4. The method as claimed in claim 1, further comprising the step of, when a received frame is said frame for path detection and is of destination unknown in the own apparatus, holding the received frame for path detection, and also, broadcasting it.

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5. The method as claimed in claim 3, further comprising the step of, when a received frame is said frame for path detection and is of destination unknown in the own apparatus, holding  
5 the received frame for path detection, and also, broadcasting it.

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6. A repeating apparatus of a layer 2 LAN, comprising:

a broadcasting part, when a received frame is a destination-unknown frame, generating and  
15 broadcasting a frame for path detection having a shortest data length using a destination address of said received frame and an address of the own apparatus; and

a received-frame transmitting part, when  
20 receiving a responding frame returned from a repeating apparatus having found the destination for said frame for path detection, transmitting said  
(2 received frame for a transmission source of said responding frame.

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7. A repeating apparatus of a layer 2 LAN, comprising:

a storing part, when a received frame is a broadcast frame or a destination-unknown frame, storing said received frame or a derivative frame thereof; and

35 a discarding part, when receiving the frame the same as said received frame or derivative frame within a predetermined time from the storage

of said received frame or derivative frame,  
discarding the received same frame.

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8. A repeating apparatus of a layer 2 LAN,  
comprising:

10 a storing part, when a received frame is a  
broadcast frame or a destination-unknown frame,  
storing said received frame or a derivative frame  
thereof; and

15 a broadcasting part, when said received  
frame is a destination-unknown frame, generating and  
broadcasting a frame for path detection having a  
shortest data length using a destination address of  
said received frame and an address of the own  
apparatus;

20 a discarding part, when receiving the  
frame the same as said received frame or derivative  
frame within a predetermined time from the storage  
of said received frame or derivative frame,  
discarding the received same frame;

25 a received-frame transmitting part, when  
receiving a responding frame returned from a  
repeating apparatus having found the destination for  
said frame for path detection, transmitting said  
received frame for a transmission source of said  
responding frame.

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35 9. The apparatus as claimed in claim 6,  
further comprising a path-detection broadcasting  
part, when a received frame is said frame for path

detection and is of destination unknown in the own apparatus, holding the received frame for path detection, and also, broadcasting it.

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10. The apparatus as claimed in claim 8, further comprising a path-detection broadcasting part, when a received frame is said frame for path detection and is of destination unknown in the own apparatus, holding the received frame for path detection, and also, broadcasting it.

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11. The apparatus as claimed in claim 7, further comprising a timer part measuring a time for which said storing part stores the received frame or derivative frame, for, when said predetermined time has elapsed, said discarding part to discard said received frame or derivative frame.

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12. The apparatus as claimed in claim 8, further comprising a timer part measuring the time for which said storing part stores the received frame or derivative frame, for, when said predetermined time has elapsed, said discarding part to discard said received frame or derivative frame.

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